Claims

1. Method for searching at least one data source using a query and comprising the following steps:

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   – a first step of generating a plurality of query templates, where each query template can be used to define at least a part of the query;

   – a second step of logically joining at least some of said plurality of query templates
10   to create a query representation;

   – a third step of inputting or selecting input variables into data entry fields of said query representation;

15   – a fourth step for selecting data elements that will be returned by the query;

   – a fifth step of generating the query using the query representation, input variables and the data elements to be returned;

20   – a sixth step of sending said query to the at least one data source; and

   – a seventh step of returning source results generated using the query from the at least one data source;

25   – an eighth step of generating a reference to a collated data set for each of the source results

   – a ninth step of selecting one of source results.

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2. Method according to claim 1, further comprising a prior step of defining how to generate one or more types of collated data set (dossiers).

3. Method according to claim 1 and 2, wherein the query template is related to at least part of the definition for generating a dossier.

4. Method according to claim 1, wherein zero source results are returned in the eighth step.

5. Method according to one of claims 1 or 2, wherein the query representation is defined with reference to the dossiers.

6. Method according to any one of the above claims, further including:
   a step of searching for matching dossiers by means of the query representation.

7. Method according to claim 6, wherein the step of searching for dossiers that match the query representation further includes a step of directly searching the data sources from which the dossiers are derived.

8. Method according to claim 7, wherein the step of searching for matching dossiers includes a step of logically comparing other ones of the dossiers that are indirectly or directly referenced by the dossier being matched.

9. The method of any one of the above claims, further comprising:
   — a tenth step of displaying a selected one of the source results as a displayed dossier.

10. The method of claim 7, further comprising a step of hyperlinking from an element of the displayed dossier to another dossier.

11. The method of any one of the above claims 1 or 10 further comprising
    a step of defining the content of the dossiers using one or more dossier definitions.

12. The method of claim 11, wherein the dossier definition includes one or more instances of a report definitions, whereby each report definition includes a retrieval definition to define how the members may be retrieved from a data source, a display definition

defining how the results may be displayed, and an access definition for defining the permitted access to an instance of the report definition.

13. The method of claim 12, wherein the dossier definition further includes one or more dossier reference definitions, a dossier reference definition defining a link between at least one instance of the report definition and at least one instance of a dossier definition.

14. The method of claim 12, wherein the dossier reference definition defines how a hyperlink is created between an element of a report and a dossier.

15. The method according to any one of claims 12 to 14, further including a step of the creation of one or more report template mappings using one of the report definitions.

16. Method according to any one of claims 12 to 15 further comprising a step of taking the retrieval definition and inverting said retrieval definition to create a search definition, the search definition being used in the construction of a query that will retrieve source results.

17. Method according to any one of claims 12 to 15 further comprising a step of taking the display definition and inverting said display definition to create a template form.

18. Method according to claim 17, wherein one or more columns in a tabular one of the report definitions are associated with one or more of the data entry fields in the associated one of the template forms.

19. Method according to any one of claims 12 or 15, further comprising a step of creating a dossier linkage relationship between an element in a template form with a corresponding one of the dossier definitions.

20. Method according to claim 19, wherein the said dossier linkage relationship is created using the dossier reference definition in a corresponding one of the report definitions.

21. Method according to any one of claims 11 to 20, wherein the step of collating the selected source result further includes a step of selecting a dossier definition for use in collating the source data.

5   22. Method according to any one of the above claims, wherein the step of creating a query representation comprises a step of assembling a query structure in which said plurality of query templates are joined using nesting and/or Boolean logic.

23. Method according to claim 22, further including a step of constructing a query
10   representation layer using a plurality of query templates logically joined together using Boolean logic.

24. Method according to any one of the above claims, wherein the step of creating a query representation, further comprises a step of creating a plurality of nested query
15   representation layers, wherein the nested query representation layers may be used to check the content of dossiers directly or indirectly referenced by the matching dossier.

25. Method according to any one of claims 11 to 24, further comprising a step of creating a plurality of query context subsets of the plurality of query templates wherein each
20   query context subset contains query templates that are associated with a single dossier definition through report template mapping.

26. Method according to any of the above claims, further comprising a step of creating a plurality of access control subsets of the plurality of query templates wherein each
25   access control subset contains only those query templates that may be accessed by a particular user of the system.

27. Method according to claim 23 of creating a query representation layer comprising a plurality of query templates belonging to a selected one of the plurality of query
30   context subsets and also belong to the access control subset.

28. Method according to any of the above claims, further comprising a step of defining an initial query context of the query by selecting an initial one of the plurality of dossier definitions.

29. Method according to claim 24 of creating an initial query representation layer.

30. Method according to claim 29, further comprising a step for setting the query context
    of the initial query representation layer according to the initial query context.

31. Method according to one of claims 27 to 30 for nesting one or more empty query
    representation layers below a selected one of a plurality of query templates in the
    query representation layer and of setting the query context of said empty query
    representation layers.

32. Method according to one of claims 19 to 31, further comprising a step of creating a
    dossier linkage subset having one or more dossier definitions, wherein each member
    of the dossier linkage subset has a dossier linkage relationship with the said selected
    one of the plurality of query templates.

33. Method according to claim 32, further comprising a step of setting the context of the
    query representation layer by selecting a member of said dossier linkage subset.

34. Method according to any one of the above claims further comprising a step of storing
    and retrieving sets of query representations.

35. Method according to claim 34, further comprising a step of blocking retrieval of query
    representations which contain query templates not belonging to the access control
    subset for the user.

36. Method according to one of claims 24 to 35, further comprising a step of nesting a
    retrieved query representation below a selected one of the plurality of query templates
    in the current query representation.

37. Method according to claim 36, further comprising a step of ensuring that the initial
    context of the said retrieved query representation has a dossier linkage relationship
    with the said selected one of the plurality of query templates under which it will be
    nested.

38. Method according to claims 24 to 37, further comprising a step of adding a query template with a nested empty query representation layer to the existing query representation.

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39. Method according to claim 38, further comprising a step of selecting a query representation layer into which the said query template and nested query representation layer will be added.

10   40. Method according to any one of claims 38 and 39, further comprising a step of creating a template linkage subset of the plurality of query templates that have a linkage relationship to the query context of the said query representation layer.

41. Method according to claims 38 to 40, further comprising a step of selecting one of the
15   said plurality of query templates within the template linkage subset.

42. Method according to any one of claims 38 to 41, further comprising a step of setting the query context of the said added query representation layer to be a selected one of the dossier definitions.

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43. Method according to claim 40, further comprising a step of creating a dossier definition subset of dossier definitions wherein the said dossier definitions contain report definitions which have a report template mapping to the said selected query template.

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44. Method according to any of the above claims, wherein two or more of the at least one data sources have a different structure.

45. Method according to any of the above claims, further comprising a step of exporting
30   said results to an application program.

46. Method according to any one of the above claims, further comprising a step of assembling one or more compound query templates from the plurality of query templates and using the compound query templates to create a query representation.

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47. Method according to any of the above claims, further comprising a step of presetting and or hiding the contents of data entry fields in a query template.

5   48. Method according to claims 46 or 47, further comprising a step of storing and retrieving compound templates.

49. Use of the method of any of the above claims for generating the query relating to data in the life science industries.

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50. Use of the method of claim 49 for generating the query relating to biological, genetic, chemical or pharmacological data.

51. System for searching data comprising:

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     — a display device for displaying and editing a set of query templates with data entry fields;

     — an input device for inputting at least one variable into at least one of the set of query templates;

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     — a query generation device to generate a query using the method of one of claims 1 to 50; and

     — a display device for viewing the query that will be sent to one or more databases.

25   52. System according to claim 51 further comprising a selection device to select at least one element in the set of query templates to display at least one query template with data entry fields.

53. System according to one of claims 51 or 52 further comprising a query database

30   having a plurality of reports for display on the display device and a plurality of query templates, wherein each one of the plurality of query templates is linked to one of the plurality of reports.

54. System according to one of claims 51 to 53, further comprising a template generator for generating the query template from a report definition.

55. System according to one of claims 51 to 53, further comprising a display generator for taking the display description and creating a template display description for the corresponding template, whereby entries in the report definition become data entry fields in the query template.

56. System according to one of claims 51to 55, further comprising a search definition engine for taking the retrieval definition and generating a search definition describing how a subset of the dossiers may be created where the corresponding report for each said particular dossier matches a definition created by the input variables in the query template.

57. System according to claim 54, wherein the search generator uses the retrieval definition to automatically generate an SQL search definition.

58. System according to claim 49 to 55, wherein the search definition generator combines multiple search definitions according to the query representation to construct a single SQL statement that queries at least one of the data sources.

59. System according to claim 1, wherein the query generation device converts a query representation into a multiple stage query and wherein results returned from early stages are incorporated into the generation of later stage queries.

60. System according to any of the above claims for automatically converting a query representation into natural language.

61. System according to claims 51 to 60 for searching data in life science industries.

62. System according to claim 61 for the searching of collated biological, genetic, chemical or pharmacological data.

63. Database structure for use in a method for searching data sources having a plurality of dossier definitions, report definitions and a plurality of query templates having a plurality of input fields, wherein one of the plurality of report definitions is associated with one of the plurality of query templates.

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64. Database structure of claim 61, further comprising a set of access controls on each dossier definition and report definition.

65. Database structure of claim 61 or 62, further comprising a display definition defining

10   how to display results returned from the method for searching databases.

66. The system and method for searching at least one data source as set forth in the description with reference to the drawings.